SYSTEMS AND METHODS FOR CONTAMINANT DETECTION WITHIN A FLUID, ULTRAVIOLET TREATMENT AND STATUS NOTIFICATION

Abstract

A fluid-borne (e.g., water, air) biological and chemical hazard detection and treatment system can include sensors (e.g., flow rate, contaminant detectors), treatment using ultraviolet laser-emitted light, can be microprocessor controlled and can communicate and be controlled over data networks. Treatment and detection systems can be deployed at various stages along a fluid distribution system, allowing for protection coverage and redundancy. During treatment, fluid enters into and/or passes through a "treatment area" wherein the fluid is subjected to light emanating from a laser at wavelengths within the ultraviolet range. DNA for microorganisms contained within fluid (including blood) are reactive to laser light as they pass through treatment areas and are rendered un-infective. Treatment systems can be staged in close proximity, providing more than one treatment area and associated light sources to a fluid stream. Such staging can provide for concentrated redundancy prior to its delivery to the intended point of use.